UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,919	07/09/2003	Sukesh Patel	ASHOP103US	4224

23623 7590 03/22/2007

AMIN, TUROCY & CALVIN, LLP
1900 EAST 9TH STREET, NATIONAL CITY CENTER
24TH FLOOR,
CLEVELAND, OH 44114

EXAMINER	
JONES, HUGH M	
ART UNIT	**PAPER NUMBER**
2128	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/617,919	PATEL ET AL.	
	Examiner	Art Unit	
	Hugh Jones	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *7/9/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-42 of U. S. Application 10/617,919, filed 7/9/2003, are pending.

Claim Objections

2. Claims 27-28 are objected to because of the following informalities: There is a grammatical issue because of the deletion of the "wherein". Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 1-37, 41 are rejected under 35 U.S.C. 101 because the claimed invention is drawn to non-statutory subject matter since the claims do not provide for a tangible *result*.

- claims 1-29: Analysis of the claims indicates that the "system", is merely abstractions and/or models. The claims do not provide a tangible result.
- claims 30-37: The claims do not provide a tangible result.
- claim 41: a data packet (disembodied ones and zeros) does not comprise a statutory class. The claim does not provide a tangible result.

5. Claims 38-40 are statutory because of the structure as indicated by the means for language.

6. Claim 42 is statutory because the film stack comprises a material is tangible.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- The preamble of claim 1 recites "performs one of verification and validation". This is ambiguous. The language indicates two possible independent claims, and is not standard US claim construction.

Claim Interpretation

9. The following observations are made.

- Many claims recite *can*, *can be, utilizing, for* and *facilitating*. Any recitations following such language are provided no patentable weight.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 1-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedberg in view of (Panoramic v3.01 (paper by Pistor and five pages from the Panoramic Technology homepage dates 9/28/2002).

13. Specifically, Friedberg (denoted as "F") discloses the limitations as subsequently disclosed including textual display of film stack information (section 4.4, pp. 72-74).

14. However, Friedberg does not provide many details and does not appear to provide a visual display of the film stack in the user interface.

15. Panoramic Technology 3.01 (denoted as "P") provides such a teaching (fig. 2-5, 11 of Pistor and pages 1, 3-4 of the website printout).

16. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the Friedberg teaching with the Panoramic teaching for the following reasons. Friedberg teaches that PROLITH is used to carry out the simulation (abstract). Panoramic discloses that the simulator is equivalent to or better than PROLITH (see first page and last page). Panoramic discloses (first page) that their product is less expensive). Panoramic further discloses (first page) that the user will be able to see all

the details in order to facilitate the simulating and will have more control over the simulation thus leading to more flexibility.

17. Specifically, Friedberg and Panoramic disclose:

1. A system that performs one of verification and validation of an APC assisted process via simulation (F: sections 3-4), comprising: a film stack representation (F: section 4.4, pp. 72-74; pp. 72-73; P: fig. 2-5, 11 of Pistor and pages 1, 3-4 of the website printout); and a canonical model that predicts process rates (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout), the process rates predicted based at least in part upon an exposed material in the film stack representation (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

2. The system of claim 1, the film stack representation comprising at least one layer (F: section 4.4, pp. 72-74; P: fig. 2-5, 11 of Pistor and pages 1, 3-4 of the website printout).

3. The system of claim 2, the layer comprising at least one block, the at least one block defined by material type and size (F: section 4.4, pp. 72-74; P: fig. 2-5, 11 of Pistor and pages 1, 3-4 of the website printout).

4. The system of claim 3, the film stack representation generated via associating blocks within a graphical user interface (F: section 4.4, pp. 72-74; P: fig. 2-5, 11 of Pistor and pages 1, 3-4 of the website printout).

5. The system of claim 3, the film stack representation generated via associating blocks comprising a defined grammar (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 of Pistor and pages 1, 3-4 of the website printout).

6. The system of claim 3, the material type and size being user-defined (F:

section 4.4, pp. 72-74; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

7. The system of claim 1, the film stack representation comprising at least one guarded process rate; the at least one process rate being associated with one or more blocks (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

8. The system of claim 7, a precondition utilized as a guard for a predictive model based process rate (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

9. The system of claim 1, the canonical model receiving a chamber state and predicting a process rate based at least in part upon parameters of the chamber state, the parameters including at least one of elapsed simulation time, process tool settings, exposed material, and semiconductor device characteristics (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

10. The system of claim 9, one of the process tool settings being generated according to a distribution associated with a process input (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

11. The system of claim 10, the distribution being user-defined (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

12. The system of claim 10, the distribution obtained via a design of experiments (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

13. The system of claim 9, device characteristic inputs being generated

according to a distribution associated with the semiconductor characteristics (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

14. The system of claim 13, the distribution being user-defined (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

15. The system of claim 13, the distribution obtained via a design of experiments (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

16. The system of claim 1, further comprising a solver for generating recipe parameter recommendations according to at least one of inputs, outputs, goal(F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-4, 11, pages 1-4 of Pistor) and constraint(F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-4, pages 1-4 of Pistor) of the canonical model (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

17. The system of claim 16, a parameter recommended by the solver varied according to a distribution of process inputs (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

18. The system of claim 17, the distribution being user-defined (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

19. The system of claim 17, the distribution obtained via a design of experiments (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

20. The system of claim 17, the parameter generated by a pseudorandom variate

generator (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

21. The system of claim 1, further comprising a rendering component that facilitates display of the film stack representation as a process is simulated (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 of Pistor and pages 1, 3-4 of the website printout).

22. The system of claim 21, the rendering component displays of at least one of inputs to the canonical model, outputs of the canonical model, parameters of a process chamber, simulation start time, elapsed simulation time, the film stack representation, and distribution of the inputs (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

23. The system of claim 1, the canonical model comprising one or more of model variables, model constraints, and model goals (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

24. The system of claim 23, the canonical model comprises one of the model constraints and the model goals (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

25. The system of claim 24, the canonical model predicting process rates in two dimensions (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

26. The system of claim 24, the canonical model predicting process rates in three dimensions (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

27. The system of claim 1, a simulation speed is customized by a user (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

28. The system of claim 1, a simulation is halted by one of a user and a predefined interrupt (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

29. The system of claim 1 comprised by a computer-readable storage medium (F: section 4; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

30. A method for validating a semiconductor manufacturing process (F: sections 3-4), comprising: generating a film stack representation (F: section 4.4, pp. 72-73; P: fig. 2-5, 11 of Pistor and pages 1, 3-4 of the website printout); and providing a canonical model that predicts process rates for an exposed material in the film stack representation given a process step (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

31. The method of claim 30, further comprising: creating a chamber state, the chamber state comprising parameters associated with a process chamber; and relaying the chamber state to the canonical model (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

32. The method of claim 31, further comprising displaying the film stack representation as a process is simulated (F: section 4.4, pp. 72-73; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

33. The method of claim 31, further comprising displaying chamber state parameters and associated outputs from the canonical model (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and

pages 1, 3-4 of the website printout).

34. The method of claim 31, further comprising determining appropriate chamber parameters given current chamber parameters and a predicted process rate (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

35. The method of claim 34, the determined chamber parameters varied according to a distribution associated with a process input (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

36. The method of claim 35, the distribution being user-defined (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

37. The method of claim 35, the distribution obtained via a design of experiments (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 of Pistor and pages 1, 3-4 of the website printout).

38. A system that facilitates verification of an APC assisted process (F: sections 3-4) comprising: means for generating a film stack representation (F: section 4.4, pp. 72-73; P: fig. 2-5, 11 of Pistor and pages 1, 3-4 of the website printout); means for obtaining parameters relating to a process chamber at a particular point in time (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout); and means for predicting a process rate based at least in part upon the film stack representation and the parameters (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

39. The system of claim 38, further comprising means for selecting a simulation time (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5,

11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

40. The system of claim 39, further comprising means for displaying a simulation of the predicted process as applied to the film stack representation (F: ; P: fig. 2-5, 11 of Pistor and pages 1, 3-4 of the website printout).

41. A data packet that passes between at least two computer processes (F: sections 3-4), comprising: a canonical model that predicts process rates based at least in part upon parameters of a tool chamber, an exposed material, and a particular process step (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout); and a film stack representation that comprises a layer, the layer including a material utilized by the canonical model to predict a process rate (F: 4.4, pp. 72-73; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

42. A system that facilitates in situ monitoring of a semiconductor manufacturing process (F: sections 3-4), comprising: a process rate calculator calculates semiconductor manufacturing process rates based at least in part upon sensed parameters of a process chamber tool and time between receiving sensed parameters (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout) (F: 4.4, pp. 72-73; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout); a film stack comprising a material (F: 4.4, pp. 72-73; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout); a solver component that generates desirable parameters of the process chamber tool based at least in part upon the calculated process rate and the sensed parameters (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-

4 of the website printout); and a rendering component that displays the film stack as the film stack is processed (F: 4.4, pp. 72-73; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout).

Response to Arguments

18. Applicant's arguments, filed 1/8/2007, have been carefully considered and are not persuasive.

19. The 112(1) rejections are withdrawn in view of Applicant's arguments.

20. Applicant's arguments regarding the 101 rejections are not persuasive.

21. Applicants refer to a portion sentence taken out of context from the Eolas case. Respectfully, Applicants misrepresent the findings in the case. Applicants are requested to review the case. In particular, note that the issue was whether CFR 271 applied to *software products* and whether code was a *component* of an invention.

22. The quotation from the Eolas case, in it's *proper context* is (emphasis added):

> "35 U.S.C. §271(f)(1) (2000). Section 271(f) refers to "components of a patented invention." This statutory language uses the broad and inclusive term "patented invention." Title 35, in the definitions section, defines "invention" to mean "invention or discovery"-again broad and inclusive terminology. 35 U.S.C. §100(a) (2000). The next section in Title 35, section 101, explains that an invention includes "any new and useful process, machine, manufacture or composition of matter." 35 U.S.C. §101 (2000). ***Without question, software code alone qualifies as an invention eligible for patenting*** under these categories, at least as processes. See In re Alappat, 33 F.3d 1526 [31 USPQ2d 1545] (Fed. Cir. 1994); AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352 [50 USPQ2d 1447] (Fed. Cir. 1999); MPEP §2106.IV.B.1.a. (8th ed., rev. 2 2001). ***The patented invention in this case is such a software product***. '906 patent, col. 17, ll. 58 - col. 18, ll. 30. Thus, *this software code claimed in conjunction with a* ***physical structure***, ***such as a disk***, fits within at least those two categories of subject matter within the broad statutory label of "patented invention.""

and

Computer software code created in United States and exported abroad may qualify as "component[] of a patented invention" within meaning of 35 U.S.C. §271(f), since software code alone qualifies as invention eligible for patenting, at least as "process," since every form of invention eligible for patenting falls within protection of Section 271(f), and since statute does not limit that section to "machine" components or "structural or physical" components; in present case, software code on "golden master" disk supplied by defendant from United States is "component" of computer program invention, since computer program product is patented invention within meaning of Patent Act, and "computer readable program code" claimed in patent in suit thus is part or component of that patented invention, since software code on master disk is key part of claimed invention, in that, without software code, invention would not work at all and thus would not qualify as new and "useful," since sound policy counsels against varying definition of "component of a patented invention" according to particular form of part under consideration, and since legislative history of Section 271(f) supports conclusion that "components" include software code on master disks.

and also

35 U.S.C. §271(f)
[8] This court must also decide whether software code made in the United States and exported abroad is a "component[ ] of a patented invention" under section 271(f). Section 271(f)(1) states:
Whoever without authority supplies or causes to be supplied in or from the United States all or a substantial portion of the components of a patented invention, where such components are uncombined in whole or in part, in such a manner as to actively induce the combination of such components outside the United States in a manner that would infringe the patent if such combination occurred within the United States shall be liable as an infringer.
35 U.S.C. §271(f)(1) (2000). Section 271(f) refers to "components of a patented invention." This statutory language uses the broad and inclusive term "patented invention." Title 35, in the definitions section, defines "invention" to mean "invention or discovery"-again broad and inclusive terminology. 35 U.S.C. §100(a) (2000). The next section in Title 35, section 101, explains that an invention includes "any new and useful process, machine, manufacture or composition of matter." 35 U.S.C. §101 (2000). Without question, software code alone qualifies as an invention eligible for patenting under these categories, at least as processes. See In re Alappat, 33 F.3d 1526 [31 USPQ2d 1545] (Fed. Cir. 1994); AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352 [50 USPQ2d 1447] (Fed. Cir. 1999); MPEP §2106.IV.B.1.a. (8th ed., rev. 2 2001). The patented invention in this case is such a software product. '906 patent, col. 17, ll. 58 - col. 18, ll. 30. Thus, this software code claimed in conjunction with a physical structure, such as

> a disk, fits within at least those two categories of subject matter within the broad statutory label of "patented invention."
> This statutory language did not limit section 271(f) to patented "machines" or patented "physical structures." Rather every form of invention eligible for patenting falls within the protection of section 271(f). By the same token, the statute did not limit section 271(f) to "machine" components or "structural or physical" components. Rather every component of every form of invention deserves the protection of section 271(f).
> In examining the statutory language of section 271(f), this court must next examine whether the software code on the golden master disk is a "component" of the computer program invention. A "component" of a process invention would encompass method steps or acts. See, e.g., 35 U.S.C. §112, ¶6 (2000). A "component" of an article of manufacture invention would encompass a part of that construct. Because a computer program product is a patented invention within the meaning of Title 35, then the "computer readable program code" claimed in claim 6 of the '906 patent is a part or component of that patented invention.
> Exact duplicates of the software code on the golden master disk are incorporated as an operating element of the ultimate device. This part of the software code is much more than a prototype, mold, or detailed set of instructions. This operating element in effect drives the "functional nucleus of the finished computer product." Imagexpo, L.L.C. v. Microsoft, Corp., 299 F.Supp.2d 550, 553 (E.D. Va. 2003). Without this aspect of the patented invention, the invention would not work at all and thus would not even qualify as new and "useful." Thus, the software code on the
> Page 1794 golden master disk is not only a component, it is probably the key part of this patented invention. Therefore, the language of section 271(f) in the context of Title 35 shows that this part of the claimed computer product is a "component of a patented invention."

23. Applicants have omitted the citations in their recitation, namely:

In re Alappat, 33 F.3d 1526 [31 USPQ2d 1545] (Fed. Cir. 1994); AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352 [50 USPQ2d 1447] (Fed. Cir. 1999); MPEP §2106.IV.B.1.a. (8th ed., rev. 2 2001).

24. *Respectfully, Applicants conclusion is nowhere to be found in those cases, including the MPEP section. If Applicants believe otherwise, they are requested to explain their reasoning.*

25. Applicants also attempt to argue that signals can be patented. Applicants are well aware (or should be) that the MPEP does not support such a position. There is nothing in the cited cases that supports the notion that signals in and of themselves constitute patentable material.

26. The rejected claims do not provide for a ***tangible result***.

27. Applicant's arguments regarding the art rejections are not persuasive. The applied art discloses a system that performs one of verification and validation of an APC assisted process via simulation (F: sections 3-4), comprising: a film stack representation (F: section 4.4, pp. 72-74; pp. 72-73; P: fig. 2-5, 11 of Pistor and pages 1, 3-4 of the website printout); and a canonical model that predicts process rates (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout), the process rates predicted based at least in part upon an exposed material in the film stack representation (F: section 4, fig. 4.1, 4.3, 4.7, Appendix B; P: fig. 2-5, 11 and pages 1-4 of Pistor and pages 1, 3-4 of the website printout). Applicant's arguments regarding screenshots are not understood. Applicant's arguments regarding the use of the two references are also not understood. The invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have

been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Conclusion

28. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

29. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

30. Any inquiry concerning this communication or earlier communications from the examiner should be:

directed to: Dr. Hugh Jones telephone number (571) 272-3781,

Monday-Thursday 0830 to 0700 ET,

or

the examiner's supervisor, Kamini Shah, telephone number (571) 272-2279.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, telephone number (703) 305-3900.

mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 308-9051 (for formal communications intended for entry)

or (703) 308-1396 (for informal or draft communications, please label *PROPOSED* or *DRAFT*).

Dr. Hugh Jones

Primary Patent Examiner

March 10, 2007